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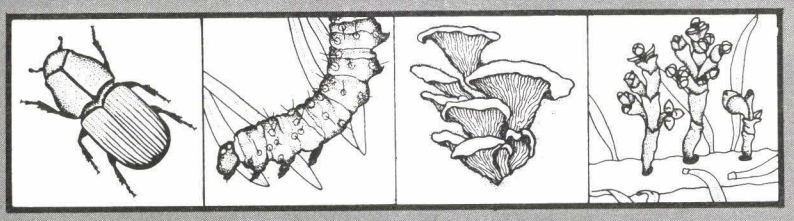
Forest Pest Management



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ROCKY MOUNTAIN FOREST AND RANGE EXPERIMENT STATION

EVALUATION OF DWARF MISTLETOE CONTROL PROJECTS, GARNET RESOURCE AREA, BUREAU OF LAND MANAGEMENT

By

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SUMMARY

Residual, nonmerchantable lodgepole pine are dwarf mistletoe infested and pose a threat to existing understory trees and to future plantings. Felling or girdling these residuals, coupled with thinning and sanitation, will effectively reduce dwarf mistletoe intensity and increase future volume yields. Control is recommended.

INTRODUCTION

The BLM Butte District has proposed two control projects:

1. Southern Cross Sanitation and Thinning.--Killing old growth lodgepole pine and sanitation thinning of the existing 30-year old stand on 45 acres.

2. Black Bear Sanitation.--Removal of infested lodgepole pine residuals to protect new plantings on 156 acres.

Richard Betts, BLM, and I evaluated the areas on January 21, 1981.

TECHNICAL INFORMATION

Causal agent.--Lodgepole pine dwarf mistletoe, Arceuthobium americanum.

Host.--Lodgepole pine, Pinus contorta.

Type of Damage.--Reduction of tree vigor, reduction of height and diameter growth, and some mortality. My estimate for average volume loss in infested lodgepole pine type in the Garnet area due to A. americanum is 8 cubic feet per acre per year.

AREA DESCRIPTION

The two proposed control areas are in the Garnet Resource Area, east of Missoula.

Southern Cross.--Sec. 6, T12N, R14W (figure 1). An old infested lodgepole pine overstory is scattered throughout the stand. The understory is predominantly 30-year-old lodgepole pine, with a few scattered Douglas-fir and subalpine fir. Dwarf mistletoe infection occurs in the young lodgepole pine adjacent to the infested overstory trees.

Black Bear.--Sec. 22, T12N, R13W (figure 2). This area was recently logged, but scattered, infested, nonmerchantable lodgepole pine were left. Nine- to 12-inch d.b.h. Douglas-fir were left as a seed source, but all the Douglas-fir were blown down in the spring of 1980. The Douglas-fir is being salvaged, and to quote Betts, "What is left is a mess."

MANAGEMENT ALTERNATIVES

Southern Cross

1. Defer treatment.--Leaving infested residuals will result in continued infection of, and losses in, the present overstocked stand. Trees will also lose the ability to respond to thinning.

2. Girdle old infested residuals, thin, and sanitize existing stand.--Killing the infested residuals will remove the mistletoe seed source, resulting in a reduction of infection. Thinning/sanitizing the existing stand will reduce the impact of mistletoe and increase the potential product size.

Black Bear

1. Defer treatment.--Leaving infested residuals will result in infection of newly planted lodgepole pine and continued losses in the new stand.

2. Fall infested residuals and plant container-grown lodgepole pine on presently proposed areas (see figure 2).--This will result in a fully stocked, essentially mistletoe-free young stand on the treated area.

3. Same as 2 above, except on originally proposed area (see figure 2).--Same benefits as in 2 above on a larger area.

PREFERRED ALTERNATIVES

Southern Cross.--Girdle old infested residuals, thin, and sanitize existing stand.

Black Bear.--Fall infested residuals and plant container-grown lodgepole on originally proposed areas. Other factors probably dictate a reduction in size to the current proposal (see figure 2).

DISCUSSION

Dwarf mistletoe is responsible for growth loss of about 8 cubic feet per acre per year in infested lodgepole pine type in the Garnet area. Infested trees and stands are also more vulnerable to attack by other disease organisms and insects.

Southern Cross.--The old infested lodgepole pine overstory will be girdled and the 30-year old remaining stand thinned to a 12- by 12-foot spacing. Overstory girdling and sanitation will reduce the impact of dwarf mistletoe, and thinning will increase the potential product size in this dense stand. Work will be done by contract. A pathologist will be available to BLM to help train the contractor's crews.

Black Bear.--The infested lodgepole pine overstory will be removed and the area will be planted with container-grown lodgepole pine seedlings. Removal of the infested lodgepole pine overstory before planting will result in an essentially mistletoe-free area.

RECOMMENDATION

Reduction of dwarf mistletoe impact through silvicultural practices is biologically sound. Costs are usually higher when mistletoe must be considered, and additional funding is often required. The proposed treatments are sound, and will increase stand productivity. I recommend the use of insect and disease funds for these two projects.

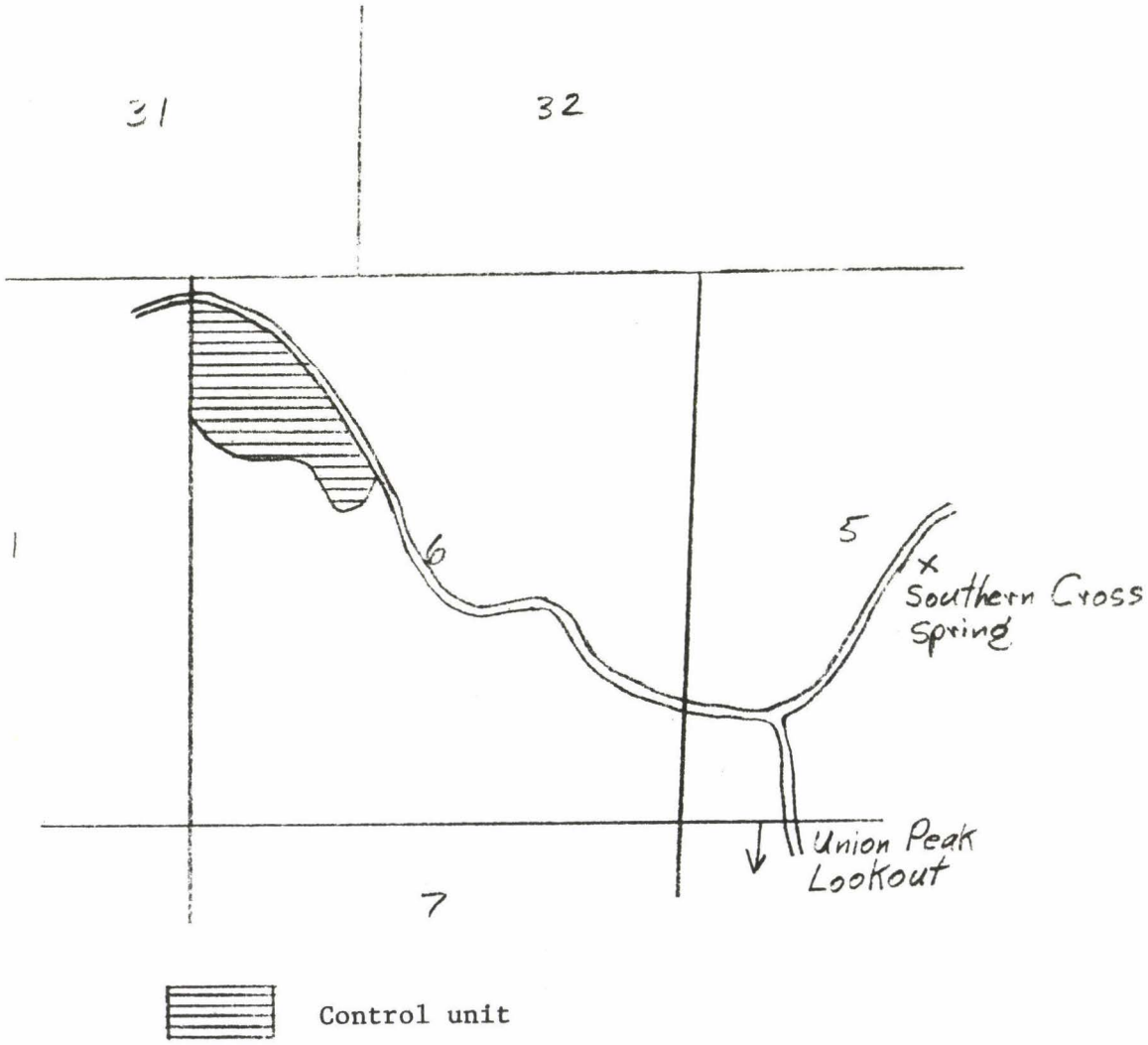

Figure 1.--Proposed Southern Cross Dwarf Mistletoe Control Unit.

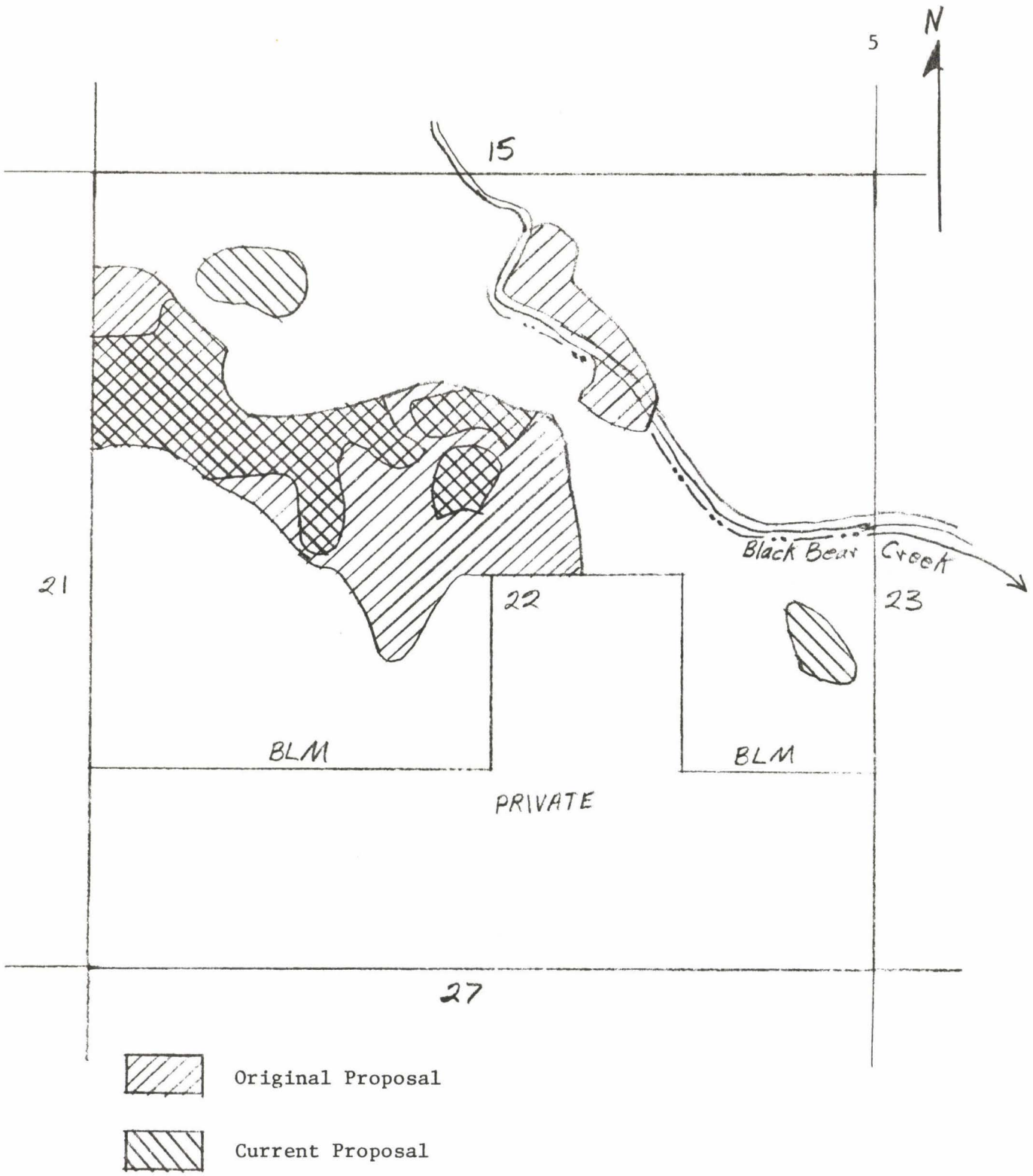

Figure 2.--Proposed Black Bear Dwarf Mistletoe Control Unit.